

IN THE CLAIMS

Please amend the claims as follows:

1. (Currently Amended) A method of a monitoring device for determining which, if any, communication application layer protocols can be used to extract status information related to a network device, comprising:

storing, by the monitoring device, in a device object associated with the network device, application layer protocol specific information obtained from a digital repository for a plurality of communication application layer protocols;

selecting, by the monitoring device, any communication application layer protocol among the plurality of communication application layer protocols;

obtaining, by the monitoring device, from the device object associated with the network device, the application layer protocol specific information for accessing the network device using the selected communication application layer protocol;

determining, by the monitoring device, if the network device can be accessed using through the selected communication application layer protocol by sending a message in accordance with the selected communication application layer protocol and the application layer protocol specific information for accessing the network device obtained from the device object;

if the determining step determines that the network device can not be accessed using the selected communication application layer protocol, removing, from the device object, by the monitoring device, the application layer protocol specific information for accessing the network device using the selected communication application layer protocol;

if the determining step determines that the network device can be accessed using the selected communication application layer protocol, performing, by the monitoring device,

further tests to determine whether the selected communication application layer protocol can be used to extract the status information from the network device; and

repeating, by the monitoring device, the selecting, obtaining, determining, removing, and performing steps for each application layer protocol of the plurality of communication application layer protocols.

2. (Currently Amended) The method of claim 1, wherein the step of performing further tests comprises:

determining whether a vendor of the network device can be obtained from the network device using the selected communication application layer protocol;

if the preceding determining step determines that the vendor can not be obtained using the selected communication application layer protocol, checking whether the selected communication application layer protocol supports a generic vendor, and if the selected communication application layer protocol does not support the generic vendor, removing, from the device object, the application layer protocol specific information for accessing the network device using the selected communication application layer protocol;

if the preceding determining step determines that the vendor can be obtained using the selected communication application layer protocol, obtaining the vendor from the network device and determining whether the obtained vendor is supported by the selected communication application layer protocol;

if the obtained vendor is not supported by the selected communication application layer protocol, checking whether the selected communication application layer protocol supports the generic vendor, and if the selected communication application layer protocol does not support the generic vendor, removing, from the device object, the application layer

protocol specific information for accessing the network device using the selected communication application layer protocol; and

if the obtained vendor is supported by the selected communication application layer protocol, performing further tests related to model information.

3. (Currently Amended) The method of claim 2, wherein the step of performing further tests related to model information comprises:

determining whether a model of the network device can be obtained from the network device using the selected communication application layer protocol;

if the preceding determining step determines that the model can not be obtained using the selected communication application layer protocol, checking whether the selected communication application layer protocol supports a generic model, and if the selected communication application layer protocol does not support the generic model, removing, from the device object, the application layer protocol specific information for accessing the network device using the selected communication application layer protocol;

if the preceding determining step determines that the model can be obtained using the selected communication application layer protocol, obtaining the model from the network device and determining whether the obtained model is supported by the selected communication application layer protocol; and

if the obtained model is not supported by the selected communication application layer protocol, checking whether the selected communication application layer protocol supports the generic model, and if the selected communication application layer protocol does not support the generic model, removing, from the device object, the application layer protocol specific information for accessing the network device using the selected communication application layer protocol.

4. (Original) The method of claim 1, wherein the obtaining step comprises:  
obtaining, from the device object, a protocol parameter map comprising at least one entry, wherein each entry comprises a protocol string and a corresponding vector of information used to access the network device using a protocol indicated in the protocol string.

5. (Currently Amended) The method of claim 1, wherein the step of determining if the network device can be accessed comprises:  
transmitting, to the network device, the application layer protocol specific information for accessing the network device using the selected communication application layer protocol;

receiving, by the network device, the transmitted application layer protocol specific information; and

determining if the network device responds to the received application layer protocol specific information indicating that the network device can be accessed using the selected communication application layer protocol.

6. (Cancelled).

7. (Currently Amended) The method of claim 1, wherein the selecting step comprises:  
selecting the communication application layer protocol among SNMP, HTTP, and FTP.

8. (Currently Amended) The method of claim 1, wherein the step of performing further tests comprises:

checking whether the selected communication application layer protocol is SNMP, wherein, if the checking step determines that the selected communication application layer protocol is SNMP, the selected communication application layer protocol can be used to extract the status information from the network device.

9. (Currently Amended) A monitoring computer including a processor configured to determine which, if any, communication application layer protocols can be used to extract status information related to a network device, comprising:

means for storing, in a device object associated with the network device, application layer protocol specific information obtained from a digital repository for a plurality of communication application layer protocols;

means for selecting any communication application layer protocol among the plurality of communication application layer protocols;

means for obtaining, from the device object associated with the network device, the application layer protocol specific information for accessing the network device using the selected communication application layer protocol;

means for determining if the network device can be accessed ~~using~~ through the selected communication application layer protocol by sending a message in accordance with the selected communication application layer protocol and the protocol specific information ~~for accessing the network device~~ obtained from the device object;

means for removing, from the device object, the application layer protocol specific information for accessing the network device using the selected communication application

layer protocol, when the means for determining determines that the network device can not be accessed using the selected communication application layer protocol;

means for performing further tests to determine whether the selected communication application layer protocol can be used to extract the status information from the network device, when the means for determining determines that the network device can be accessed using the selected communication application layer protocol, and

means for repeating the selecting, obtaining, determining, removing, and performing for each application layer protocol of the plurality of communication application layer protocols.

10. (Currently Amended) The monitoring computer of claim 9, wherein the means for performing further tests comprises:

means for determining whether a vendor of the network device can be obtained from the network device using the selected communication application layer protocol;

means for checking whether the selected communication application layer protocol supports a generic vendor, when the means for determining determines that the vendor can not be obtained using the selected communication application layer protocol, and means for removing, from the device object, the application layer protocol specific information for accessing the network device using the selected communication application layer protocol, when the selected communication application layer protocol does not support the generic vendor;

means for obtaining the vendor from the network device and means for determining whether the obtained vendor is supported by the selected communication application layer protocol, when the means for determining determines that the vendor can be obtained using the selected communication application layer protocol;

means for checking whether the selected communication application layer protocol supports the generic vendor, when the obtained vendor is not supported by the selected communication application layer protocol, and means for removing, from the device object, the application layer protocol specific information for accessing the network device using the selected communication application layer protocol, when the obtained vendor is not supported by the selected communication application layer protocol; and

means for performing further tests related to model information, when the obtained vendor is supported by the selected communication application layer protocol.

11. (Currently Amended) The monitoring computer of claim 10, wherein the means for performing further tests related to model information comprises:

means for determining whether a model of the network device can be obtained from the network device using the selected communication application layer protocol;

means for checking whether the selected communication application layer protocol supports a generic model, when the means for determining determines that the model can not be obtained using the selected communication application layer protocol, and means for removing, from the device object, the application layer protocol specific information for accessing the network device using the selected communication application layer protocol, when the selected communication application layer protocol does not support the generic model;

means for obtaining the model from the network device and means for determining whether the obtained model is supported by the selected communication application layer protocol, when the means for determining determines that the model can be obtained using the selected communication application layer protocol; and

means for checking whether the selected communication application layer protocol supports the generic model, when the obtained model is not supported by the selected communication application layer protocol, and means for removing, from the device object, the application layer protocol specific information for accessing the network device using the selected communication application layer protocol, when the obtained model is not supported by the selected communication application layer protocol.

12. (Previously Presented) The monitoring computer of claim 9, wherein the means for obtaining comprises:

means for obtaining, from the device object, a protocol parameter map comprising at least one entry, wherein each entry comprises a protocol string and a corresponding vector of information used to access the network device using a protocol indicated in the protocol string.

13. (Currently Amended) The monitoring computer of claim 9, wherein the means for determining if the network device can be accessed comprises:

means for transmitting, to the network device, the application layer protocol specific information for accessing the network device using the selected communication application layer protocol;

means for receiving, by the network device, the transmitted application layer protocol specific information; and

means for determining if the network device responds to the received application layer protocol specific information indicating that the network device can be accessed using the selected communication application layer protocol.



14. (Currently Amended) The monitoring computer of claim 9, wherein the means for selecting comprises:

means for selecting the communication application layer protocol among SNMP, HTTP, and FTP.

15. (Currently Amended) The monitoring computer of claim 9, wherein the means for performing further tests comprises:

means for checking whether the selected communication application layer protocol is SNMP,

wherein, if the means for checking determines that the selected communication application layer protocol is SNMP, the selected communication application layer protocol can be used to extract the status information from the network device.

16. (Currently Amended) A computer program product including a computer readable medium having embedded therein instructions, which when executed by a processor, cause the processor to perform a method of a monitoring device for determining which, if any, communication application layer protocols can be used to extract status information related to a network device, comprising:

instructions for storing, by the monitoring device, in a device object associated with the network device, application layer protocol specific information obtained from a digital repository for a plurality of communication application layer protocols;

instructions for selecting, by the monitoring device, any communication application layer protocol among the plurality of communication application layer protocols;

instructions for obtaining, by the monitoring device, from the device object associated with the network device, the application layer protocol specific information for accessing the network device using the selected communication application layer protocol;

instructions for determining, by the monitoring device, if the network device can be accessed ~~using~~ through the selected communication application layer protocol by sending a message in accordance with the selected communication application layer protocol and the application layer protocol specific information ~~for accessing the network device~~ obtained from the device object;

instructions for removing, by the monitoring device, from the device object, the application layer protocol-specific information for accessing the network device using the selected communication application layer protocol, when the instructions for determining determine that the network device can not be accessed using the selected communication application layer protocol;

instructions for performing, by the monitoring device, further tests to determine whether the selected communication application layer protocol can be used to extract the status information from the network device, when the instructions for determining determine that the network device can be accessed using the selected communication application layer protocol, and

instructions for repeating, by the monitoring device, the instructions for selecting, instructions for obtaining, instructions for determining, instructions for removing, and instructions for performing for each application layer protocol of the plurality of communication application layer protocols.

17. (Currently Amended) The computer program product of claim 16, wherein the instructions for performing further tests comprise:

instructions for determining whether a vendor of the network device can be obtained from the network device using the selected communication application layer protocol;

instructions for checking whether the selected communication application layer protocol supports a generic vendor, when the instructions for determining determine that the vendor can not be obtained using the selected communication application layer protocol, and instructions for removing, from the device object, the application layer protocol specific information for accessing the network device using the selected communication application layer protocol, when the selected communication application layer protocol does not support the generic vendor;

instructions for obtaining the vendor from the network device and instructions for determining whether the obtained vendor is supported by the selected communication application layer protocol, when the instructions for determining determine that the vendor can be obtained using the selected communication application layer protocol;

instructions for checking whether the selected communication application layer protocol supports the generic vendor, when the obtained vendor is not supported by the selected communication application layer protocol, and instructions for removing, from the device object, the application layer protocol specific information for accessing the network device using the selected communication application layer protocol, when the selected communication application layer protocol does not support the generic vendor; and

instructions for performing further tests related to model information, when the obtained vendor is supported by the selected communication application layer protocol.

18. (Currently Amended) The computer program product of claim 17, wherein the instructions for performing further tests related to model information comprise:

instructions for determining whether a model of the network device can be obtained from the network device using the selected communication application layer protocol;

instructions for checking whether the selected communication application layer protocol supports a generic model, when the instructions for determining step determine that the model can not be obtained using the selected communication application layer protocol, and instructions for removing, from the device object, the application layer protocol specific information for accessing the network device using the selected communication application layer protocol, when the selected communication application layer protocol does not support the generic model;

instructions for obtaining the model from the network device and instructions for determining whether the obtained model is supported by the selected communication application layer protocol, when the instructions for determining determine that the model can be obtained using the selected communication application layer protocol; and

instructions for checking whether the selected communication application layer protocol supports the generic model, when the obtained model is not supported by the selected communication application layer protocol, and instructions for removing, from the device object, the application layer protocol specific information for accessing the network device using the selected communication application layer protocol, when the selected communication application layer protocol does not support the generic model.

19. (Original) The computer program product of claim 16, wherein the instructions for obtaining comprise:

instructions for obtaining, from the device object, a protocol parameter map comprising at least one entry, wherein each entry comprises a protocol string and a

corresponding vector of information used to access the network device using a protocol indicated in the protocol string.

20. (Currently Amended) The computer program product of claim 16, wherein the instructions for determining if the network device can be accessed comprise:

instructions for transmitting, to the network device, the application layer protocol specific information for accessing the network device using the selected communication application layer protocol;

instructions for receiving, by the network device, the transmitted application layer protocol specific information; and

instructions for determining if the network device responds to the received application layer protocol specific information indicating that the network device can be accessed using the selected communication application layer protocol.

21. (Cancelled).

22. (Currently Amended) The computer program product of claim 16, wherein the instructions for selecting comprise:

instructions for selecting the communication application layer protocol among SNMP, HTTP, and FTP.

23. (Currently Amended) The computer program product of claim 16, wherein the instructions for performing further tests comprise:

instructions for checking whether the selected communication application layer protocol is SNMP,

wherein if the instructions for checking determine that the selected communication application layer protocol is SNMP, the selected communication application layer protocol can be used to extract the status information from the network device.

24. (Currently Amended) The method of claim 1, wherein the step of determining if the network device can be accessed comprises:

determining if the network device can be accessed by ~~[[a]] the monitoring computer device~~ using the selected communication application layer protocol and the application layer protocol specific information for accessing the network device obtained from the device object.

25. (Currently Amended) The monitoring computer of claim 9, wherein the means for determining determines if the network device can be accessed by the monitoring computer using the selected communication application layer protocol and the application layer protocol specific information for accessing the network device obtained from the device object.

26. (Currently Amended) The computer program product of claim 16, wherein the instructions for determining comprises:

instructions for determining if the network device can be accessed by ~~[[a]] the monitoring computer device~~ using the selected communication application layer protocol and the application layer protocol specific information for accessing the network device obtained from the device object.